

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Wei-Qiang Gao  
Appl. No. : Unknown  
Filed : Herewith  
For : HAIR CELL DISORDERS

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SEQUENCE SUBMISSION STATEMENT

Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

A copy of the Sequence Listing in computer readable form as required by 37 C.F.R. § 1.821(e) is submitted herewith.

As required by 37 C.F.R. § 1.821(f), the Sequence Listing information recorded in computer readable form on the enclosed disk is identical to the written Sequence Listing in the application filed herewith.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 4 MAY 2001

By: 

James J. Mullen III, Ph.D.

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# SEQUENCE LISTING

<110> Genentech, Inc.  
Gao, Wei-Qiang

<120> HAIR CELL DISORDERS

<130> GENENT.035VPC

<160> 14

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 669

<212> PRT

<213> Homo sapiens

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Arg Ala Val Arg Val Glu Arg Ser Val Ser Gly Glu Met Ser Glu Arg
      35             40             45
Lys Glu Gly Arg Gly Lys Gly Lys Gly Lys Lys Lys Glu Arg Gly Ser
      50             55             60
Gly Lys Lys Pro Glu Ser Ala Ala Gly Ser Gln Ser Pro Ala Leu Pro
      65             70             75             80
Pro Arg Leu Lys Glu Met Lys Ser Gln Glu Ser Ala Ala Gly Ser Lys
      85             90             95
Leu Val Leu Arg Cys Glu Thr Ser Ser Glu Tyr Ser Ser Leu Arg Phe
      100            105            110
Lys Trp Phe Lys Asn Gly Asn Glu Leu Asn Arg Lys Asn Lys Pro Gln
      115            120            125
Asn Ile Lys Ile Gln Lys Lys Pro Gly Lys Ser Glu Leu Arg Ile Asn
      130            135            140
Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr Met Cys Lys Val Ile Ser
      145            150            155            160
Lys Leu Gly Asn Asp Ser Ala Ser Ala Asn Ile Thr Ile Val Glu Ser
      165            170            175
Asn Glu Ile Ile Thr Gly Met Pro Ala Ser Thr Glu Gly Ala Tyr Val
      180            185            190
Ser Ser Glu Ser Pro Ile Arg Ile Ser Val Ser Thr Glu Gly Ala Asn
      195            200            205
Thr Ser Ser Ser Thr Ser Thr Ser Thr Thr Gly Thr Ser His Leu Val
      210            215            220
Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn Gly Gly Glu Cys
      225            230            235            240
Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr Leu Cys Lys Cys
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<213> Homo sapiens

<220>

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<222> (2)...(2008)

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act ttt ccc aaa ccc gat ccg agc cct tgg acc aaa ctc gcc tgc gcc 97
Thr Phe Pro Lys Pro Asp Pro Ser Pro Trp Thr Lys Leu Ala Cys Ala
      20             25             30

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Glu Ser Arg Pro Arg Arg Ala Leu Arg Leu Arg Arg Asp Val Arg Ala
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Gln Arg Arg Gln Arg Gln Arg Glu Gly Gln Glu Glu Gly Ala Arg Leu
      50             55             60

cgg caa gaa gcc gga gtc cgc gcc ggg cag cca gag ccc agc ctt gcc 241
Arg Gln Glu Ala Gly Val Arg Gly Gly Gln Pro Glu Pro Ser Leu Ala
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Ser Pro Ile Glu Arg Asp Glu Lys Pro Gly Ile Gly Cys Arg Phe Gln
      85             90             95

act agt cct tcg gtg tga aac cag ttc tga ata ctc ctc tct cag att 337
Thr Ser Pro Ser Val * Asn Gln Phe * Ile Leu Leu Ser Gln Ile
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caa gtg gtt caa gaa tgg gaa tga att gaa tcg aaa aaa caa acc aca 385
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Lys Tyr Gln Asp Thr Lys Lys Ala Arg Glu Val Arg Thr Ser His *
      130             135             140

caa agc atc act ggc tga ttc tgg aga gta tat gtg caa agt gat cag 481
Gln Ser Ile Thr Gly * Phe Trp Arg Val Tyr Val Gln Ser Asp Gln
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Gln Ile Arg Lys * Gln Cys Leu Cys Gln Tyr His His Arg Gly Ile
      160             165             170

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Lys Arg Asp His His Trp Tyr Ala Ser Leu Asn * Arg Ser Ile Cys
      175             180             185
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Val Phe Arg Val Ser His * Asn Ile Ser Ile His Arg Arg Ser Lys	
190 195 200	
tac ttc ttc atc tac atc tac atc cac cac tgg gac aag cca tct tgt	673
Tyr Phe Phe Ile Tyr Ile Tyr Ile His His Trp Asp Lys Pro Ser Cys	
205 210 215	
aaa atg tgc gga gaa gga gaa aac ttt ctg tgt gaa tgg agg gga gtg	721
Lys Met Cys Gly Glu Gly Glu Asn Phe Leu Cys Glu Trp Arg Gly Val	
220 225 230	
ctt cat ggt gaa aga cct ttc aaa ccc ctc gag ata ctt gtg caa gtg	769
Leu His Gly Glu Arg Pro Phe Lys Pro Leu Glu Ile Leu Val Gln Val	
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cca acc tgg att cac tgg agc aag atg tac tga gaa tgt gcc cat gaa	817
Pro Thr Trp Ile His Trp Ser Lys Met Tyr * Glu Cys Ala His Glu	
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Ser Pro Lys Pro Arg Lys Gly Gly Gly Ala Val Pro Glu Glu Ser Ala	
265 270 275	
gac cat aac cgg cat ctg cat cgc cct cct tgt ggt cgg cat cat gtg	913
Asp His Asn Arg His Leu His Arg Pro Pro Cys Gly Arg His His Val	
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Cys Gly Gly Leu Leu Gln Asn Gln Glu Thr Ala Glu Lys Ala Ala *	
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ccg tct tcg gca gag cct tcg gtc tga acg aaa caa tat gat gaa cat	1009
Pro Ser Ser Ala Glu Pro Ser Val * Thr Lys Gln Tyr Asp Glu His	
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Cys Gln Trp Ala Ser Pro Ser * Pro Thr Pro Arg Glu Cys Pro Ala	
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Gly Glu Ser Ile Arg Ile * Lys Arg His Leu Gln * Ala Tyr Cys	
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tga gag aga agc aga gac atc ctt ttc cac cag tca cta tac ttc cac	1153
* Glu Arg Ser Arg Asp Ile Leu Phe His Gln Ser Leu Tyr Phe His	
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Ser Pro Ser Leu His Tyr Cys His Pro Asp Ser * Pro Gln Leu Glu	
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Gln Arg Thr His * Lys His Pro Phe Arg Lys Pro Leu Cys Asn Arg	
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Lys Arg Thr Ser * Trp His Arg Arg Pro Ser * Met * Gln Leu	
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Pro Gln Ala Cys Gln Arg Asn Pro * Phe Leu Pro Arg Leu Ser Ser	
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* * Lys Val Cys Val Ser His Asp His Pro Gly Ser Tyr Val Thr	
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Cys Arg Phe Pro His Ala Lys Leu Pro Gln Ile Ala Pro Phe Gly Asn	
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Leu Pro Pro Gln Pro Arg Ala * Gln * Gln Pro Pro Cys * Pro	
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Leu Glu Asp Ser Gly Gly * Gly Val * Asn Asp Pro Arg Val Arg	
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gcc agc cca aga gcc tgt taa gaa act cgc caa tag ccg gcg ggc caa	1777
Ala Ser Pro Arg Ala Cys * Glu Thr Arg Gln * Pro Ala Gly Gln	
550 555 560	
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Lys Asn Gln Ala Gln Trp Pro His Cys * Gln Ile Gly Ser Gly Gln	
565 570 575	
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Gln His Lys Leu Pro Glu Gln * Leu Arg Glu * Asn Arg Arg *	
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Lys Ser Arg * Arg Tyr Ala Phe Pro Gly His Thr Glu Pro Pro Gly	

590 595 600

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 Ser Gln Ser \* Gly Asn Thr Cys Leu Pro Pro Gly \* Gln Gln Asp  
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taa ccc agc agg ccg ctt ctc gac aca gga aga aat cca ggccaggctg 2018  
 \* Pro Ser Arg Pro Leu Leu Asp Thr Gly Arg Asn Pro  
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Gly	Ser	Gly	Lys	Lys	Pro	Glu	Ser	Ala	Ala	Gly	Ser	Gln	Ser	Pro	Ala
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Leu	Pro	Pro	Gln	Leu	Lys	Glu	Met	Lys	Ser	Gln	Glu	Ser	Ala	Ala	Gly
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Ser	Lys	Leu	Val	Leu	Arg	Cys	Glu	Thr	Ser	Ser	Glu	Tyr	Ser	Ser	Leu
			85						90					95	
Arg	Phe	Lys	Trp	Phe	Lys	Asn	Gly	Asn	Glu	Leu	Asn	Arg	Lys	Asn	Lys
			100					105					110		
Pro	Gln	Asn	Ile	Lys	Ile	Gln	Lys	Lys	Pro	Gly	Lys	Ser	Glu	Leu	Arg
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Tyr	Val	Ser	Ser	Glu	Ser	Pro	Ile	Arg	Ile	Ser	Val	Ser	Thr	Glu	Gly
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Ala	Asn	Thr	Ser	Ser	Ser	Thr	Ser	Thr	Ser	Thr	Thr	Gly	Thr	Ser	His
		195					200					205			
Leu	Val	Lys	Cys	Ala	Glu	Lys	Glu	Lys	Thr	Phe	Cys	Val	Asn	Gly	Gly
	210					215					220				
Glu	Cys	Phe	Met	Val	Lys	Asp	Leu	Ser	Asn	Pro	Ser	Arg	Tyr	Leu	Cys
225					230					235				240	
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			245					250					255		
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			260				265						270		

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 305 310 315 320  
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 Ile Ser Ser Glu His Ile Val Glu Arg Glu Ala Glu Thr Ser Phe Ser  
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 Thr Ser His Tyr Thr Ser Thr Ala His His Ser Thr Thr Val Thr Gln  
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 Glu Ser His Ser Val Ile Val Met Ser Ser Val Glu Asn Ser Arg His  
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 Ser Tyr Arg Asp Ser Pro His Ser Glu Arg Tyr Val Ser Ala Met Thr  
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 Thr Pro Ala Arg Met Ser Pro Val Asp Phe His Thr Pro Ser Ser Pro  
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 Lys Ser Pro Pro Ser Glu Met Ser Pro Pro Val Ser Ser Met Thr Val  
 485 490 495  
 Ser Met Pro Ser Met Ala Val Ser Pro Phe Met Glu Glu Glu Arg Pro  
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 515 520 525  
 His Pro Gln Gln Phe Ser Ser Phe His His Asn Pro Ala His Asp Ser  
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 Asn Ser Leu Pro Ala Ser Pro Leu Arg Ile Val Glu Asp Glu Glu Tyr  
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 Glu Thr Thr Gln Glu Tyr Glu Pro Ala Gln Glu Pro Val Lys Lys Leu  
 565 570 575  
 Ala Asn Ser Arg Arg Ala Lys Arg Thr Lys Pro Asn Gly His Ile Ala  
 580 585 590  
 Asn Arg Leu Glu Val Asp Ser Asn Thr Ser Ser Gln Ser Ser Asn Ser  
 595 600 605  
 Glu Ser Glu Thr Glu Asp Glu Arg Val Gly Glu Asp Thr Pro Phe Leu  
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 Arg Leu Ala Asp Ser Arg Thr Asn Pro Ala Gly Arg Phe Ser Thr Gln  
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 <222> (3)...(2027)

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          20             25             30

tcc gag cgc aaa gaa ggc aga ggc aaa ggg aag ggc aag aag aag gag      143
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          35             40             45

cga ggc tcc ggc aag aag ccg gag tcc gcg gcg ggc agc cag agc cca      191
Arg Gly Ser Gly Lys Lys Pro Glu Ser Ala Ala Gly Ser Gln Ser Pro
          50             55             60

gcc ttg cct ccc caa ttg aaa gag atg aaa agc cag gaa tcg gct gca      239
Ala Leu Pro Pro Gln Leu Lys Glu Met Lys Ser Gln Glu Ser Ala Ala
          65             70             75

ggg tcc aaa cta gtc ctt ccg tgt gaa acc agt tct gaa tac tcc tct      287
Gly Ser Lys Leu Val Leu Arg Cys Glu Thr Ser Ser Glu Tyr Ser Ser
          80             85             90             95

ctc aga ttc aag tgg ttc aag aat ggg aat gaa ttg aat cga aaa aac      335
Leu Arg Phe Lys Trp Phe Lys Asn Gly Asn Glu Leu Asn Arg Lys Asn
          100            105            110

aaa cca caa aat atc aag ata caa aaa aag cca ggc aag tca gaa ctt      383
Lys Pro Gln Asn Ile Lys Ile Gln Lys Lys Pro Gly Lys Ser Glu Leu
          115            120            125

cgc att aac aaa gca tca ctg gct gat tct gga gag tat atg tgc aaa      431
Arg Ile Asn Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr Met Cys Lys
          130            135            140

gtg atc agc aaa tta gga aat gac agt gcc tct gcc aat atc acc atc      479
Val Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser Ala Asn Ile Thr Ile
          145            150            155

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Val Glu Ser Asn Glu Ile Ile Thr Gly Met Pro Ala Ser Thr Glu Gly
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Ala Tyr Val Ser Ser Glu Ser Pro Ile Arg Ile Ser Val Ser Thr Glu

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195	200	205	
cat ctt gta aaa tgt gcg gag aag gag aaa act ttc tgt gtg aat gga			671
His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn Gly			
210	215	220	
ggg gag tgc ttc atg gtg aaa gac ctt tca aac ccc tcg aga tac ttg			719
Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr Leu			
225	230	235	
tgc aag tgc cca aat gag ttt act ggt gat cgc tgc caa aac tac gta			767
Cys Lys Cys Pro Asn Glu Phe Thr Gly Asp Arg Cys Gln Asn Tyr Val			
240	245	250	255
atg gcc agc ttc tac aag cat ctt ggg att gaa ttt atg gag gcg gag			815
Met Ala Ser Phe Tyr Lys His Leu Gly Ile Glu Phe Met Glu Ala Glu			
260	265	270	
gag ctg tac cag aag aga gtg ctg acc ata acc ggc atc tgc atc gcc			863
Glu Leu Tyr Gln Lys Arg Val Leu Thr Ile Thr Gly Ile Cys Ile Ala			
275	280	285	
ctc ctt gtg gtc ggc atc atg tgt gtg gtg gcc tac tgc aaa acc aag			911
Leu Leu Val Val Gly Ile Met Cys Val Val Ala Tyr Cys Lys Thr Lys			
290	295	300	
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Lys Gln Arg Lys Lys Leu His Asp Arg Leu Arg Gln Ser Leu Arg Ser			
305	310	315	
gaa cga aac aat atg atg aac att gcc aat ggg cct cac cat cct aac			1007
Glu Arg Asn Asn Met Met Asn Ile Ala Asn Gly Pro His His Pro Asn			
320	325	330	335
cca ccc ccc gag aat gtc cag ctg gtg aat caa tac gta tct aaa aac			1055
Pro Pro Pro Glu Asn Val Gln Leu Val Asn Gln Tyr Val Ser Lys Asn			
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gtc atc tcc agt gag cat att gtt gag aga gaa gca gag aca tcc ttt			1103
Val Ile Ser Ser Glu His Ile Val Glu Arg Glu Ala Glu Thr Ser Phe			
355	360	365	
tcc acc agt cac tat act tcc aca gcc cat cac tcc act act gtc acc			1151
Ser Thr Ser His Tyr Thr Ser Thr Ala His His Ser Thr Thr Val Thr			
370	375	380	
cag act cct agc cac agc tgg agc aac gga cac act gaa agc atc ctt			1199
Gln Thr Pro Ser His Ser Trp Ser Asn Gly His Thr Glu Ser Ile Leu			
385	390	395	
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Val Ser Met Pro Ser Met Ala Val Ser Pro Phe Met Glu Glu Glu Arg	
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Pro Leu Leu Leu Val Thr Pro Pro Arg Leu Arg Glu Lys Lys Phe Asp	
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Ser Asn Ser Leu Pro Ala Ser Pro Leu Arg Ile Val Glu Asp Glu Glu	
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Tyr Glu Thr Thr Gln Glu Tyr Glu Pro Ala Gln Glu Pro Val Lys Lys	
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Leu Ala Asn Ser Arg Arg Ala Lys Arg Thr Lys Pro Asn Gly His Ile	
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Ala Asn Arg Leu Glu Val Asp Ser Asn Thr Ser Ser Gln Ser Ser Asn	
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Ser Glu Ser Glu Thr Glu Asp Glu Arg Val Gly Glu Asp Thr Pro Phe	
610 615 620	

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 Pro Ile Ala Val  
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 <213> Homo sapiens

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 Ala Gly Ser Lys Leu Val Leu Arg Cys Glu Thr Ser Ser Glu Tyr Ser  
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 Lys Val Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser Ala Asn Ile Thr  
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 Gly Ala Tyr Val Ser Ser Glu Ser Pro Ile Arg Ile Ser Val Ser Thr  
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 Glu Gly Ala Asn Thr Ser Ser Ser Thr Ser Thr Ser Thr Thr Gly Thr  
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 Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn  
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 Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr  
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 Val Met Ala Ser Phe Tyr Lys Ala Glu Glu Leu Tyr Gln Lys Arg Val

225		230		235		240
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Cys Val Val Ala Tyr Cys Lys Thr Lys Lys Gln Arg Lys Lys Leu His						
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Asp Arg Leu Arg Gln Ser Leu Arg Ser Glu Arg Asn Asn Met Met Asn						
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Ile Ala Asn Gly Pro His His Pro Asn Pro Pro Pro Glu Asn Val Gln						
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Leu Val Asn Gln Tyr Val Ser Lys Asn Val Ile Ser Ser Glu His Ile						
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Val Glu Arg Glu Ala Glu Thr Ser Phe Ser Thr Ser His Tyr Thr Ser						
	325		330		335	
Thr Ala His His Ser Thr Thr Val Thr Gln Thr Pro Ser His Ser Trp						
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Ser Asn Gly His Thr Glu Ser Ile Leu Ser Glu Ser His Ser Val Ile						
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Val Met Ser Ser Val Glu Asn Ser Arg His Ser Ser Pro Thr Gly Gly						
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Pro Arg Gly Arg Leu Asn Gly Thr Gly Gly Pro Arg Glu Cys Asn Ser						
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Phe Leu Arg His Ala Arg Glu Thr Pro Asp Ser Tyr Arg Asp Ser Pro						
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His Ser Glu Arg Tyr Val Ser Ala Met Thr Thr Pro Ala Arg Met Ser						
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Pro Val Asp Phe His Thr Pro Ser Ser Pro Lys Ser Pro Pro Ser Glu						
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Met Ser Pro Pro Val Ser Ser Met Thr Val Ser Lys Pro Ser Met Ala						
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Val Ser Pro Phe Met Glu Glu Glu Arg Pro Leu Leu Leu Val Thr Pro						
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Pro Arg Leu Arg Glu Lys Lys Phe Asp His His Pro Gln Gln Phe Ser						
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Ser Phe His His Asn Pro Ala His Asp Ser Asn Ser Leu Pro Ala Ser						
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Pro Leu Arg Ile Val Glu Asp Glu Glu Tyr Glu Thr Thr Gln Glu Tyr						
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Glu Pro Ala Gln Glu Pro Val Lys Lys Leu Ala Asn Ser Arg Arg Ala						
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Lys Arg Thr Lys Pro Asn Gly His Ile Ala Asn Arg Leu Glu Val Asp						
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Ser Asn Thr Ser Ser Gln Ser Ser Asn Ser Glu Ser Glu Thr Glu Asp						
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Glu Arg Val Gly Glu Asp Thr Pro Phe Leu Gly Ile Gln Asn Pro Leu						
	580		585		590	
Ala Ala Ser Leu Glu Ala Thr Pro Ala Phe Arg Leu Ala Asp Ser Arg						
	595		600		605	
Thr Asn Pro Ala Gly Arg Phe Ser Thr Gln Glu Glu Ile Gln Ala Arg						
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<222> (461) ... (2371)

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caggacggtg ataacctctc cccgatcggg ttgcgagggc gccgggcaga ggccaggacg 180
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gccagggcga gcgcccgttc caggtggccg gaccgcccgc cgcgtccgcg ccgcgtctcc 300
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cccatcgagg gacaaacttt tcccaaacc gatccgagcc cttggaccaa actcgcttgc 420
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                                Met Ser Glu Arg Lys
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Glu Gly Arg Gly Lys Gly Lys Gly Lys Lys Lys Glu Arg Gly Ser Gly
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aag aag ccg gag tcc gcg gcg ggc agc cag agc cca gcc ttg cct ccc 571
Lys Lys Pro Glu Ser Ala Ala Gly Ser Gln Ser Pro Ala Leu Pro Pro
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caa ttg aaa gag atg aaa agc cag gaa tcg gct gca ggt tcc aaa cta 619
Gln Leu Lys Glu Met Lys Ser Gln Glu Ser Ala Ala Gly Ser Lys Leu
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gtc ctt cgg tgt gaa acc agt tct gaa tac tcc tct ctc aga ttc aag 667
Val Leu Arg Cys Glu Thr Ser Ser Glu Tyr Ser Ser Leu Arg Phe Lys
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tgg ttc aag aat ggg aat gaa ttg aat cga aaa aac aaa cca caa aat 715
Trp Phe Lys Asn Gly Asn Glu Leu Asn Arg Lys Asn Lys Pro Gln Asn
                                70         75         80         85

atc aag ata caa aaa aag cca ggg aag tca gaa ctt cgc att aac aaa 763
Ile Lys Ile Gln Lys Lys Pro Gly Lys Ser Glu Leu Arg Ile Asn Lys
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gca tca ctg gct gat tct gga gag tat atg tgc aaa gtg atc agc aaa 811
Ala Ser Leu Ala Asp Ser Gly Glu Tyr Met Cys Lys Val Ile Ser Lys
                                105        110        115

tta gga aat gac agt gcc tct gcc aat atc acc atc gtg gaa tca aac 859
Leu Gly Asn Asp Ser Ala Ser Ala Asn Ile Thr Ile Val Glu Ser Asn
                                120        125        130

gag atc atc act ggt atg cca gcc tca act gaa gga gca tat gtg tct 907
Glu Ile Ile Thr Gly Met Pro Ala Ser Thr Glu Gly Ala Tyr Val Ser
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tct tca tct aca tct aca tcc acc act ggg aca agc cat ctt gta aaa	1003
Ser Ser Ser Thr Ser Thr Ser Thr Thr Gly Thr Ser His Leu Val Lys	
170 175 180	
tgt gcg gag aag gag aaa act ttc tgt gtg aat gga ggg gag tgc ttc	1051
Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn Gly Gly Glu Cys Phe	
185 190 195	
atg gtg aaa gac ctt tca aac ccc tcg aga tac ttg tgc aag tgc cca	1099
Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr Leu Cys Lys Cys Pro	
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aat gag ttt act ggt gat cgc tgc caa aac tac gta atg gcc agc ttc	1147
Asn Glu Phe Thr Gly Asp Arg Cys Gln Asn Tyr Val Met Ala Ser Phe	
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tac aag gcg gag gag ctg tac cag aag aga gtg ctg acc ata acc ggc	1195
Tyr Lys Ala Glu Glu Leu Tyr Gln Lys Arg Val Leu Thr Ile Thr Gly	
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atc tgc atc gcc ctc ctt gtg gtc ggc atc atg tgt gtg gtg gcc tac	1243
Ile Cys Ile Ala Leu Leu Val Val Gly Ile Met Cys Val Val Ala Tyr	
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tgc aaa acc aag aaa cag cgg aaa aag ctg cat gac cgt ctt cgg cag	1291
Cys Lys Thr Lys Lys Gln Arg Lys Lys Leu His Asp Arg Leu Arg Gln	
265 270 275	
agc ctt cgg tct gaa cga aac aat atg atg aac att gcc aat ggg cct	1339
Ser Leu Arg Ser Glu Arg Asn Asn Met Met Asn Ile Ala Asn Gly Pro	
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cac cat cct aac cca ccc ccc gag aat gtc cag ctg gtg aat caa tac	1387
His His Pro Asn Pro Pro Pro Glu Asn Val Gln Leu Val Asn Gln Tyr	
295 300 305	
gta tct aaa aac gtc atc tcc agt gag cat att gtt gag aga gaa gca	1435
Val Ser Lys Asn Val Ile Ser Ser Glu His Ile Val Glu Arg Glu Ala	
310 315 320 325	
gag aca tcc ttt tcc acc agt cac tat act tcc aca gcc cat cac tcc	1483
Glu Thr Ser Phe Ser Thr Ser His Tyr Thr Ser Thr Ala His His Ser	
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act act gtc acc cag act cct agc cac agc tgg agc aac gga cac act	1531
Thr Thr Val Thr Gln Thr Pro Ser His Ser Trp Ser Asn Gly His Thr	
345 350 355	
gaa agc atc ctt tcc gaa agc cac tct gta atc gtg atg tca tcc gta	1579
Glu Ser Ile Leu Ser Glu Ser His Ser Val Ile Val Met Ser Ser Val	
360 365 370	

gaa aac agt agg cac agc agc cca act ggg ggc cca aga gga cgt ctt	1627
Glu Asn Ser Arg His Ser Ser Pro Thr Gly Gly Pro Arg Gly Arg Leu	
375 380 385	
aat ggc aca gga ggc cct cgt gaa tgt aac agc ttc ctc agg cat gcc	1675
Asn Gly Thr Gly Gly Pro Arg Glu Cys Asn Ser Phe Leu Arg His Ala	
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Arg Glu Thr Pro Asp Ser Tyr Arg Asp Ser Pro His Ser Glu Arg Tyr	
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gtg tca gcc atg acc acc ccg gct cgt atg tca cct gta gat ttc cac	1771
Val Ser Ala Met Thr Thr Pro Ala Arg Met Ser Pro Val Asp Phe His	
425 430 435	
acg cca agc tcc ccc aaa tcg ccc cct tcg gaa atg tct cca ccc gtg	1819
Thr Pro Ser Ser Pro Lys Ser Pro Pro Ser Glu Met Ser Pro Pro Val	
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tcc agc atg acg gtg tcc aag cct tcc atg gcg gtc agc ccc ttc atg	1867
Ser Ser Met Thr Val Ser Lys Pro Ser Met Ala Val Ser Pro Phe Met	
455 460 465	
gaa gaa gag aga cct cta ctt ctc gtg aca cca cca agg ctg cgg gag	1915
Glu Glu Glu Arg Pro Leu Leu Leu Val Thr Pro Pro Arg Leu Arg Glu	
470 475 480 485	
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Lys Lys Phe Asp His His Pro Gln Gln Phe Ser Ser Phe His His Asn	
490 495 500	
ccc gcg cat gac agt aac agc ctc cct gct agc ccc ttg agg ata gtg	2011
Pro Ala His Asp Ser Asn Ser Leu Pro Ala Ser Pro Leu Arg Ile Val	
505 510 515	
gag gat gag gag tat gaa acg acc caa gag tac gag cca gcc caa gag	2059
Glu Asp Glu Glu Tyr Glu Thr Thr Gln Glu Tyr Glu Pro Ala Gln Glu	
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cct gtt aag aaa ctc gcc aat agc cgg cgg gcc aaa aga acc aag ccc	2107
Pro Val Lys Lys Leu Ala Asn Ser Arg Arg Ala Lys Arg Thr Lys Pro	
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Asn Gly His Ile Ala Asn Arg Leu Glu Val Asp Ser Asn Thr Ser Ser	
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Gln Ser Ser Asn Ser Glu Ser Glu Thr Glu Asp Glu Arg Val Gly Glu	
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Asp Thr Pro Phe Leu Gly Ile Gln Asn Pro Leu Ala Ala Ser Leu Glu	



585 590 595

gca aca cct gcc ttc cgc ctg gct gac agc agg act aac cca gca ggc 2299  
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cgc ttc tcg aca cag gaa gaa atc cag gcc agg ctg tct agt gta att 2347  
 Arg Phe Ser Thr Gln Glu Glu Ile Gln Ala Arg Leu Ser Ser Val Ile  
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gct aac caa gac cct att gct gta taaaacctaa ataaacacat agattcacct 2401  
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<212> PRT

<213> Homo sapiens

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 Ala Gly Ser Lys Leu Val Leu Arg Cys Glu Thr Ser Ser Glu Tyr Ser  
 50 55 60  
 Ser Leu Arg Phe Lys Trp Phe Lys Asn Gly Asn Glu Leu Asn Arg Lys  
 65 70 75 80  
 Asn Lys Pro Gln Asn Ile Lys Ile Gln Lys Lys Pro Gly Lys Ser Glu  
 85 90 95  
 Leu Arg Ile Asn Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr Met Cys  
 100 105 110  
 Lys Val Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser Ala Asn Ile Thr  
 115 120 125  
 Ile Val Glu Ser Asn Glu Ile Ile Thr Gly Met Pro Ala Ser Thr Glu  
 130 135 140  
 Gly Ala Tyr Val Ser Ser Glu Ser Pro Ile Arg Ile Ser Val Ser Thr  
 145 150 155 160  
 Glu Gly Ala Asn Thr Ser Ser Ser Thr Ser Thr Ser Thr Thr Gly Thr  
 165 170 175  
 Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn  
 180 185 190  
 Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr  
 195 200 205  
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<220>  
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gtctccggcg ag atg tcc gag cgc aaa gaa ggc aga ggc aaa ggg aag ggc 531
          Met Ser Glu Arg Lys Glu Gly Arg Gly Lys Gly Lys Gly
                1                5                10

aag aag aag gag cga ggc tcc ggc aag aag ccg gag tcc gcg gcg ggc 579
Lys Lys Lys Glu Arg Gly Ser Gly Lys Lys Pro Glu Ser Ala Ala Gly
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agc cag agc cca gcc ttg cct ccc caa ttg aaa gag atg aaa agc cag 627
Ser Gln Ser Pro Ala Leu Pro Pro Gln Leu Lys Glu Met Lys Ser Gln
      30                35                40                45

gaa tcg gct gca ggt tcc aaa cta gtc ctt cgg tgt gaa acc agt tct 675
Glu Ser Ala Ala Gly Ser Lys Leu Val Leu Arg Cys Glu Thr Ser Ser
      50                55                60

gaa tac tcc tct ctc aga ttc aag tgg ttc aag aat ggg aat gaa ttg 723
Glu Tyr Ser Ser Leu Arg Phe Lys Trp Phe Lys Asn Gly Asn Glu Leu
      65                70                75

aat cga aaa aac aaa cca caa aat atc aag ata caa aaa aag cca ggg 771
Asn Arg Lys Asn Lys Pro Gln Asn Ile Lys Ile Gln Lys Lys Pro Gly
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aag tca gaa ctt cgc att aac aaa gca tca ctg gct gat tct gga gag 819
Lys Ser Glu Leu Arg Ile Asn Lys Ala Ser Leu Ala Asp Ser Gly Glu
      95                100                105

tat atg tgc aaa gtg atc agc aaa tta gga aat gac agt gcc tct gcc 867
Tyr Met Cys Lys Val Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser Ala
     110                115                120                125

aat atc acc atc gtg gaa tca aac gag atc atc act ggt atg cca gcc 915
Asn Ile Thr Ile Val Glu Ser Asn Glu Ile Ile Thr Gly Met Pro Ala
     130                135                140

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tca act gaa gga gca tat gtg tct tca gag tct ccc att aga ata tca 963  
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gta tcc aca gaa gga gca aat act tct tca tct aca tct aca tcc acc 1011  
 Val Ser Thr Glu Gly Ala Asn Thr Ser Ser Ser Thr Ser Thr Ser Thr  
 160 165 170

act ggg aca agc cat ctt gta aaa tgt gcg gag aag gag aaa act ttc 1059  
 Thr Gly Thr Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe  
 175 180 185

tgt gtg aat gga ggg gag tgc ttc atg gtg aaa gac ctt tca aac ccc 1107  
 Cys Val Asn Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro  
 190 195 200 205

tcg aga tac ttg tgc aag tgc cca aat gag ttt act ggt gat cgc tgc 1155  
 Ser Arg Tyr Leu Cys Lys Cys Pro Asn Glu Phe Thr Gly Asp Arg Cys  
 210 215 220

caa aac tac gta atg gcc agc ttc tac agt acg tcc act ccc ttt ctg 1203  
 Gln Asn Tyr Val Met Ala Ser Phe Tyr Ser Thr Ser Thr Pro Phe Leu  
 225 230 235

tct ctg cct gaa taggagcatg ctcagttggg gctgctttct tgttgctgca 1255  
 Ser Leu Pro Glu  
 240

tctccctca gattccacct agagctagat gtgtcttacc agatctaata ttgactgcct 1315  
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 35 40 45  
 Ala Gly Ser Lys Leu Val Leu Arg Cys Glu Thr Ser Ser Glu Tyr Ser  
 50 55 60  
 Ser Leu Arg Phe Lys Trp Phe Lys Asn Gly Asn Glu Leu Asn Arg Lys  
 65 70 75 80  
 Asn Lys Pro Gln Asn Ile Lys Ile Gln Lys Lys Pro Gly Lys Ser Glu  
 85 90 95



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 aaccgatcc gagcccttgg accaaactcg cctgcgccga gagccgtccg cgtagagcgc 480  
 tccgtctccg gcgag atg tcc gag cgc aaa gaa ggc aga ggc aaa ggg aag 531  
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ggc aag aag aag gag cga ggc tcc ggc aag aag ccg gag tcc gcg gcg 579  
 Gly Lys Lys Lys Glu Arg Gly Ser Gly Lys Lys Pro Glu Ser Ala Ala  
                   15                  20                  25

ggc agc cag agc cca gcc ttg cct ccc caa ttg aaa gag atg aaa agc 627  
 Gly Ser Gln Ser Pro Ala Leu Pro Pro Gln Leu Lys Glu Met Lys Ser  
                   30                  35                  40

cag gaa tcg gct gca ggt tcc aaa cta gtc ctt cgg tgt gaa acc agt 675  
 Gln Glu Ser Ala Ala Gly Ser Lys Leu Val Leu Arg Cys Glu Thr Ser  
                   45                  50                  55                  60

tct gaa tac tcc tct ctc aga ttc aag tgg ttc aag aat ggg aat gaa 723  
 Ser Glu Tyr Ser Ser Leu Arg Phe Lys Trp Phe Lys Asn Gly Asn Glu  
                   65                  70                  75

ttg aat cga aaa aac aaa cca caa aat atc aag ata caa aaa aag cca 771  
 Leu Asn Arg Lys Asn Lys Pro Gln Asn Ile Lys Ile Gln Lys Lys Pro  
                   80                  85                  90

ggg aag tca gaa ctt cgc att aac aaa gca tca ctg gct gat tct gga 819  
 Gly Lys Ser Glu Leu Arg Ile Asn Lys Ala Ser Leu Ala Asp Ser Gly  
                   95                  100                  105

gag tat atg tgc aaa gtg atc agc aaa tta gga aat gac agt gcc tct 867  
 Glu Tyr Met Cys Lys Val Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser  
                   110                  115                  120

gcc aat atc acc atc gtg gaa tca aac gag atc atc act ggt atg cca 915  
 Ala Asn Ile Thr Ile Val Glu Ser Asn Glu Ile Ile Thr Gly Met Pro  
                   125                  130                  135                  140

gcc tca act gaa gga gca tat gtg tct tca gag tct ccc att aga ata 963  
 Ala Ser Thr Glu Gly Ala Tyr Val Ser Ser Glu Ser Pro Ile Arg Ile  
                   145                  150                  155

tca gta tcc aca gaa gga gca aat act tct tca tct aca tct aca tcc 1011  
 Ser Val Ser Thr Glu Gly Ala Asn Thr Ser Ser Ser Thr Ser Thr Ser  
                   160                  165                  170

acc act ggg aca agc cat ctt gta aaa tgt gcg gag aag gag aaa act 1059  
 Thr Thr Gly Thr Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr  
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Phe Cys Val Asn Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn	
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ccc tcg aga tac ttg tgc aag tgt cca aat gag ttt act ggt gat cgc	1155
Pro Ser Arg Tyr Leu Cys Lys Cys Pro Asn Glu Phe Thr Gly Asp Arg	
205 210 215 220	
tgc caa aac tac gta atg gcc agc ttc tac aag gcg gag gag ctg tac	1203
Cys Gln Asn Tyr Val Met Ala Ser Phe Tyr Lys Ala Glu Glu Leu Tyr	
225 230 235	
cag aag aga gtg ctg acc ata acc ggc atc tgc atc gcc ctc ctt gtg	1251
Gln Lys Arg Val Leu Thr Ile Thr Gly Ile Cys Ile Ala Leu Leu Val	
240 245 250	
gtc ggc atc atg tgt gtg gtg gcc tac tgc aaa acc aag aaa cag cgg	1299
Val Gly Ile Met Cys Val Val Ala Tyr Cys Lys Thr Lys Lys Gln Arg	
255 260 265	
aaa aag ctg cat gac cgt ctt cgg cag agc ctt cgg tct gaa cga aac	1347
Lys Lys Leu His Asp Arg Leu Arg Gln Ser Leu Arg Ser Glu Arg Asn	
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Glu Asn Val Gln Leu Val Asn Gln Tyr Val Ser Lys Asn Val Ile Ser	
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Ser Glu His Ile Val Glu Arg Glu Ala Glu Thr Ser Phe Ser Thr Ser	
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His Tyr Thr Ser Thr Ala His His Ser Thr Thr Val Thr Gln Thr Pro	
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Ser His Ser Trp Ser Asn Gly His Thr Glu Ser Ile Leu Ser Glu Ser	
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His Ser Val Ile Val Met Ser Ser Val Glu Asn Ser Arg His Ser Ser	
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Pro Thr Gly Gly Pro Arg Gly Arg Leu Asn Gly Thr Gly Gly Pro Arg	
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Glu Cys Asn Ser Phe Leu Arg His Ala Arg Glu Thr Pro Asp Ser Tyr	
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 Arg Asp Ser Pro His Ser Glu Arg  
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 Pro Ala Gly Gly Ala Gln Glu Pro Ala His Ala Gln Glu Asn Trp Leu  
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Phe Leu Gly Thr Leu Gln Asp Asn Leu Ile Glu Met Asp Ile Leu Gly  
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420 425 430  
Ser Gly Glu Ile Asp Val Gly Arg Arg Ala Ser Gln Lys Ile Pro Pro  
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Gly Thr Phe Trp Arg Ser Gln Val Phe Ile Asp His Pro Val His Leu  
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Lys Phe Asn Val Ser Leu Gly Lys Ala Ala Leu Val Gly Ile Tyr Gly  
465 470 475 480  
Arg Lys Gly Leu Pro Pro Ser His Thr Gln Phe Asp Phe Val Glu Leu  
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Leu Asp Gly Arg Arg Leu Leu Thr Gln Glu Ala Arg Ser Leu Glu Gly  
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Gly Phe Ile Gln Tyr Leu Asp Ser Gly Ile Trp His Leu Ala Phe Tyr  
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Ala Leu Pro Pro Arg Leu Lys Glu Met Lys Ser Gln Glu Ser Ala Ala  
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Arg Ile Asn Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr Met Cys Lys  
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Val Glu Ser Asn Glu Ile Ile Thr Gly Met Pro Ala Ser Thr Glu Gly  
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Ala Tyr Val Ser Ser Glu Ser Pro Ile Arg Ile Ser Val Ser Thr Glu  
675 680 685  
Gly Ala Asn Thr Ser Ser Ser Thr Ser Thr Ser Thr Thr Gly Thr Ser



690		695		700
His Leu Val Lys Cys	Ala Glu Lys Glu Lys	Thr Phe Cys Val Asn Gly		
705	710	715	720	
Gly Glu Cys Phe Met	Val Lys Asp Leu Ser	Asn Pro Ser Arg Tyr Leu		
	725	730	735	
Cys Lys Cys Pro Asn	Glu Phe Thr Gly Asp	Arg Cys Gln Asn Tyr Val		
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aattatcatg tgtccaaatt aaaattgcat acttcaagga ttatttgaag	gactattctt	240
agaccctttt aagaagattt aaagaaaaac cactcggccc tgagtgcggc	gaggaccctg	300
tttgtggatg tggaggagcg cgggccggag gcc atg gac gtg aag gag agg aag		354
	Met Asp Val Lys Glu Arg Lys	
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Pro Tyr Arg Ser Leu Thr Arg Arg Arg Asp Ala Glu Arg Arg Tyr Thr		
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Ser Ser Ser Glu Thr Leu Lys Ala Tyr Asp Gln Asp Ala Arg Leu Ala		
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Tyr Gly Ser Arg Val Lys Asp Ile Val Pro Gln Glu Ala Glu Glu Phe		
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Cys Arg Thr Gly Ala Asn Phe Thr Leu Arg Glu Leu Gly Leu Glu Glu		
	75 80 85	
gta acg ccc cct cac ggg acc ctg tac cgg aca gac att ggc ctc ccc		642
Val Thr Pro Pro His Gly Thr Leu Tyr Arg Thr Asp Ile Gly Leu Pro		
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cac tgc ggc tac tcc atg ggg gct ggc tot gat gcc gac atg gag gct		690

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Asp	Thr	Val	Leu	Ser	Pro	Glu	His	Pro	Val	Arg	Leu	Trp	Gly	Arg	Ser		
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Thr	Arg	Ser	Gly	Arg	Ser	Ser	Cys	Leu	Ser	Ser	Arg	Ala	Asn	Ser	Asn		
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ctc	aca	ctc	acc	gac	acc	gag	cat	gaa	aac	act	gag	act	gat	cat	ccg	834	
Leu	Thr	Leu	Thr	Asp	Thr	Glu	His	Glu	Asn	Thr	Glu	Thr	Asp	His	Pro		
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ggc	ggc	ctg	cag	aac	cac	gcg	cgg	ctc	cgg	acg	ccg	ccg	ccg	ccg	ctc	882	
Gly	Gly	Leu	Gln	Asn	His	Ala	Arg	Leu	Arg	Thr	Pro	Pro	Pro	Pro	Leu		
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tcg	cac	gcc	cac	acc	ccc	aac	cag	cac	cac	gcg	gcc	tcc	att	aac	tcc	930	
Ser	His	Ala	His	Thr	Pro	Asn	Gln	His	His	Ala	Ala	Ser	Ile	Asn	Ser		
	185					190					195						
ctg	aac	cgg	ggc	aac	ttc	acg	ccg	agg	agc	aac	ccc	agc	ccg	gcc	ccc	978	
Leu	Asn	Arg	Gly	Asn	Phe	Thr	Pro	Arg	Ser	Asn	Pro	Ser	Pro	Ala	Pro		
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acg	gac	cac	tcg	ctc	tcc	gga	gag	ccc	cct	gcc	ggc	ggc	gcc	cag	gag	1026	
Thr	Asp	His	Ser	Leu	Ser	Gly	Glu	Pro	Pro	Ala	Gly	Gly	Ala	Gln	Glu		
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cct	gcc	cac	gcc	cag	gag	aac	tgg	ctg	ctc	aac	agc	aac	atc	ccc	ctg	1074	
Pro	Ala	His	Ala	Gln	Glu	Asn	Trp	Leu	Leu	Asn	Ser	Asn	Ile	Pro	Leu		
			235					240					245				
gag	acc	aga	aac	cta	ggc	aag	cag	cca	ttc	cta	ggg	aca	ttg	cag	gac	1122	
Glu	Thr	Arg	Asn	Leu	Gly	Lys	Gln	Pro	Phe	Leu	Gly	Thr	Leu	Gln	Asp		
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aac	ctc	att	gag	atg	gac	att	ctc	ggc	gcc	tcc	cgc	cat	gat	ggg	gct	1170	
Asn	Leu	Ile	Glu	Met	Asp	Ile	Leu	Gly	Ala	Ser	Arg	His	Asp	Gly	Ala		
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tac	agt	gac	ggg	cac	ttc	ctc	ttc	aag	cct	gga	ggc	acc	tcc	ccg	ctc	1218	
Tyr	Ser	Asp	Gly	His	Phe	Leu	Phe	Lys	Pro	Gly	Gly	Thr	Ser	Pro	Leu		
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Phe	Cys	Thr	Thr	Ser	Pro	Gly	Tyr	Pro	Leu	Thr	Ser	Ser	Thr	Val	Tyr		
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Ser	Pro	Pro	Pro	Arg	Pro	Leu	Pro	Arg	Ser	Thr	Phe	Ala	Arg	Pro	Ala		
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Phe Asn Leu Lys Lys Pro Ser Lys Tyr Cys Asn Trp Lys Cys Ala Ala	
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Leu Ser Ala Ile Val Ile Ser Ala Thr Leu Val Ile Leu Leu Ala Tyr	
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Val Pro Thr Asp Val Ser Leu Tyr Pro Ser Gly Gly Thr Gly Leu Glu	
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acc cct gac agg aaa ggc aaa gga acc aca gaa gga aag ccc agt agt	1602
Thr Pro Asp Arg Lys Gly Lys Gly Thr Thr Glu Gly Lys Pro Ser Ser	
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Phe Phe Pro Glu Asp Ser Phe Ile Asp Ser Gly Glu Ile Asp Val Gly	
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Val Phe Ile Asp His Pro Val His Leu Lys Phe Asn Val Ser Leu Gly	
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Lys Ala Ala Leu Val Gly Ile Tyr Gly Arg Lys Gly Leu Pro Pro Ser	
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His Thr Gln Phe Asp Phe Val Glu Leu Leu Asp Gly Arg Arg Leu Leu	
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Ser Gly Ile Trp His Leu Ala Phe Tyr Asn Asp Gly Lys Glu Ser Glu	
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Lys Glu Lys Thr Phe Cys Val Asn Gly Gly Glu Cys Phe Met Val Lys	
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Asp Leu Ser Asn Pro Ser Arg Tyr Leu Cys Lys Cys Pro Asn Glu Phe	
730 735 740	
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Thr Gly Asp Arg Cys Gln Asn Tyr Val Met Ala Ser Phe Tyr Ser Thr	
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Ser Thr Pro Phe Leu Ser Leu Pro Glu	

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Met Glu Ile Tyr Ser Pro Asp Met Ser
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Ile Ile Ser Leu Asp Ala Thr Ala Ser Ala Val Trp Val Ser Ser				
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Glu Ala Tyr Thr Ser Pro Val Ser Arg Ala Gln Ser Glu Ser Glu Val				
	140	145	150	
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Ser Thr Ala Pro Ser Phe Pro Ser Pro Thr Arg Asn Pro Glu Val Arg				
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Thr Pro Lys Ser Ala Thr Gln Pro Gln Thr Thr Glu Thr Asn Leu Gln				
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Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr Leu Cys				
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Lys Cys Pro Asn Glu Phe Thr Gly Asp Arg Cys Gln Asn Tyr Val Met				
	270	275	280	
gcc agc ttc tac agt acg tcc act ccc ttt ctg tct ctg cct gaa				1394
Ala Ser Phe Tyr Ser Thr Ser Thr Pro Phe Leu Ser Leu Pro Glu				
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<211> 296

<212> PRT

<213> Homo sapiens

<400> 14

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			20					25					30		
Pro	Ala	Ala	Glu	Asp	Met	Pro	Glu	Pro	Gln	Thr	Glu	Asp	Gly	Arg	Thr
		35					40					45			
Pro	Gly	Leu	Val	Gly	Leu	Ala	Val	Pro	Cys	Cys	Ala	Cys	Leu	Glu	Ala
	50					55					60				
Glu	Arg	Leu	Arg	Gly	Cys	Leu	Asn	Ser	Glu	Lys	Ile	Cys	Ile	Val	Pro
65					70					75					80
Ile	Leu	Ala	Cys	Leu	Val	Ser	Leu	Cys	Leu	Cys	Ile	Ala	Gly	Leu	Lys
			85						90					95	
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			100					105					110		
Asp	Pro	Gly	Gly	Leu	Gly	Gln	Asp	Pro	Ile	Ile	Ser	Leu	Asp	Ala	Thr
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Ala	Ala	Ser	Ala	Val	Trp	Val	Ser	Ser	Glu	Ala	Tyr	Thr	Ser	Pro	Val
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Ser	Arg	Ala	Gln	Ser	Glu	Ser	Glu	Val	Gln	Val	Thr	Val	Gln	Gly	Asp
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Lys	Ala	Val	Val	Ser	Phe	Glu	Pro	Ser	Ala	Ala	Pro	Thr	Pro	Lys	Asn
			165						170					175	
Arg	Ile	Phe	Ala	Phe	Ser	Phe	Leu	Pro	Ser	Thr	Ala	Pro	Ser	Phe	Pro
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Pro	Gln	Thr	Thr	Glu	Thr	Asn	Leu	Gln	Thr	Ala	Pro	Lys	Leu	Ser	Thr
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Ser	Thr	Ser	Thr	Thr	Gly	Thr	Ser	His	Leu	Val	Lys	Cys	Ala	Glu	Lys
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Glu	Lys	Thr	Phe	Cys	Val	Asn	Gly	Gly	Glu	Cys	Phe	Met	Val	Lys	Asp
			245						250					255	
Leu	Ser	Asn	Pro	Ser	Arg	Tyr	Leu	Cys	Lys	Cys	Pro	Asn	Glu	Phe	Thr
		260						265					270		
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	275						280					285			
Thr	Pro	Phe	Leu	Ser	Leu	Pro	Glu								
	290					295									